TRAVAUX DU MUSÉUM NATIONAL D'HISTOIRE NATURELLE «GRIGORE ANTIPA»

THE JOURNAL OF "GRIGORE ANTIPA" NATIONAL MUSEUM OF NATURAL HISTORY

Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 68 (2): 301–309 (2025)
doi: 10.3897/travaux.68.e162484

FAUNISTIC NOTE

# Recent data on the fish fauna of the lower Cerna River (Danube River System) with special remarks on the first occurrence of Balkan Loach *Cobitis elongata* (Pisces, Teleostei, Cobitidae)

Andrei Togor[1], Marcus Drimbea[1], Vasile Oțel[2], Ilie Telcean[3], Mihai Vodă[4]

1 *Aqua Crisius Association Oradea, Mihai Eminescu Street no. 15, 410019*
2 *Danube Delta National Institute for Research and Development, Romania, Tulcea, 820112, Babadag Street*
3 *University of Oradea, Faculty of Informatics and Sciences, Department of Biology; 1, Universităţii Street, Oradea 410087, Romania*
4 *Department of Geography at Dimitrie Cantemir University, Cantemir University, Targu Mures, Romania*

Corresponding author: *Andrei Togor* (andreitogor@gmail.com)

Received 18 June 2025 | Accepted 15 October 2025 | Published 31 December 2025

**Citation:** Togor A, Drimbea M, Oțel V, Telcean I, Vodă M (2025) Recent data on the fish fauna of the lower Cerna River (Danube River System) with special remarks on the first occurrence of Balkan Loach *Cobitis elongata* (Pisces, Teleostei, Cobitidae). Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 68(2): 301–309. https://doi.org/10.3897/travaux.67.e162484

## Abstract

This paper presents the recent results of the fish faunal study carried out in the lower course of the Cerna River, between the confluence with its main tributary (Belareca River), and until its discharge into the Danube. The study was carried out between 2020–2024 and refers to four sampling stations. Nineteen fish species were identified, besides the first occurrence of *Cobitis elongata* – the Balkan loach. The first record of this species in Cerna River is an important discovery as long as the previous data, including fish surveys in the studied area, do not mention the species in this river system.

## Keywords

*Cobitis elongata*, Balkan loach, Cobitidae, freshwater fish, Cerna River.

Copyright *Togor, Drimbea, Oțel, Telcean & Vodă*. This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

*Cobitis elongata* Heckel & Kner, 1858 is a native cobitid to Danube River system with its *terra typica* in the upperpart of the Sava River (Bănărescu and Nalbant, 1957).

The species is resident to Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, North Macedonia, Romania, Serbia and Slovenia. Its known distribution is mostly related to right-bank tributaries of the Danube system. Such tributaries include the Sava, Morava, Mlava, Pek, Timok, Lom, Ogosta, Iskar, Vit, Osam and Yantra rivers (Marić and Pavlović 2005, Kottelat and Freyhof 2007, Pehlivanov et al. 2009, Tutman et al. 2017, Ford 2024). On the left bank of the Danube, records exist only in Romania. They are mentioned from the systems of Nera (with its main tributary Miniș), from the Caraș River and Jiu River (Kottelat and Freyhof 2007; Nagy et al. 2023; Ford 2024; Bănăduc et. al 2024).

It was firstly described as a separate species in the second part of the XIX$^{th}$ century (Heckel and Kner 1858) being identified in Romania at the middle of the XX$^{th}$ century (Bănărescu 1954; Bănărescu and Nalbant 1957; Bușniță and Alexandrescu 1963).

It was described from the Nera River and its tributaries, with a large known population, well maintained later (Bănărescu 1965; Oțel and Năstase 2010). It was present in Jiu at Pești̧eana de Jiu (only one specimen described having a narrower body) (Bănărescu 1964). It seems that the local populations from Jiu dissapered due to antrophic factors, shortly after the discovery of the species in the Jiu River system, as the species was not found again after the year 1948.

It was presumed that the species might be present in small tributaries of the Danube, in the area of the Danube Gorges (Iron Gates) (Bănărescu 1964). However, according to Kottelat and Freyhof (2007), the species is not known to access small streams.

Specific to the nase (*Chondrostoma nasus*) river zone, with gravel and sandy bottom, usually the female size is larger than the male (Vasiliu 1959; Bănărescu 1964). It lives on the sandy bottom, often hiding in the sand (Bănărescu 1998; Bănărescu and Bănăduc 2007; Cocan and Mireșan 2018).

*C. elongata* was found only in the River Nera during the assesments for the Management Plan of ROSCI 0031Parcul Național Cheile Nerei – Beușnița (PMPCNB 2016).

The Nera river was believed to be the last place in Romania where the species survived with numerous specimens and vigorous population (Năstase and Oțel 2016) with some authors considering the Miniș River, an important tributary of Nera River, meeting the species favourable habitat conditions (Oțel and Năstase 2010).

A new population, the first record of *Cobitis elongata* outside the Nera River basin was found in the Caraș River (Nagy et al. 2023).

Recent studies revelead that *C. elongata* is still present in the Miniș River (Bănăduc et al. 2024), an important tributary of Nera River, where the species was firstly described in Romania.

According to the IUCN *C. elongata* is listed as LC - Least Concernand (Ford 2024) but in the Red List of Vertebrates of Romania, the species is considered being vulnerable (VU) because of its small distribution area (Botnariuc and Tatole 2005).

Cerna is a medium river with an average annual flow of 19mc/s (PMSHB 2023). Its springs are located near Godeanu Mountains and Oslea Peak, joining Danube at Orșova after 79 km of flow while receiving only one main tributary, Belareca (Atlasul Cadastrului Apelor din România, 1992). Two dams are built on Cerna forming Valea Iovanului and Herculane Artificial Lakes. Another dam is under construction on the main tributary, Belareca River, which was recently affected by river engineering works.

Field surveys were carried out between 2020–2024. Fish were sampled during the low water periods (in september) at 4 sampling sites covering the Cerna River itself and the tributary Belareca near the confluence with Cerna (Fig. 1), on a total lenght of aproximately 12 km of riverstretch. Electrofishing was applied according to the Standard EN14011 with a Samus 725 MS device, powered by a 12 V and 12–14 Ah rechargeable accumulators (Kubečka et al. 2012) The length of the sampling sites

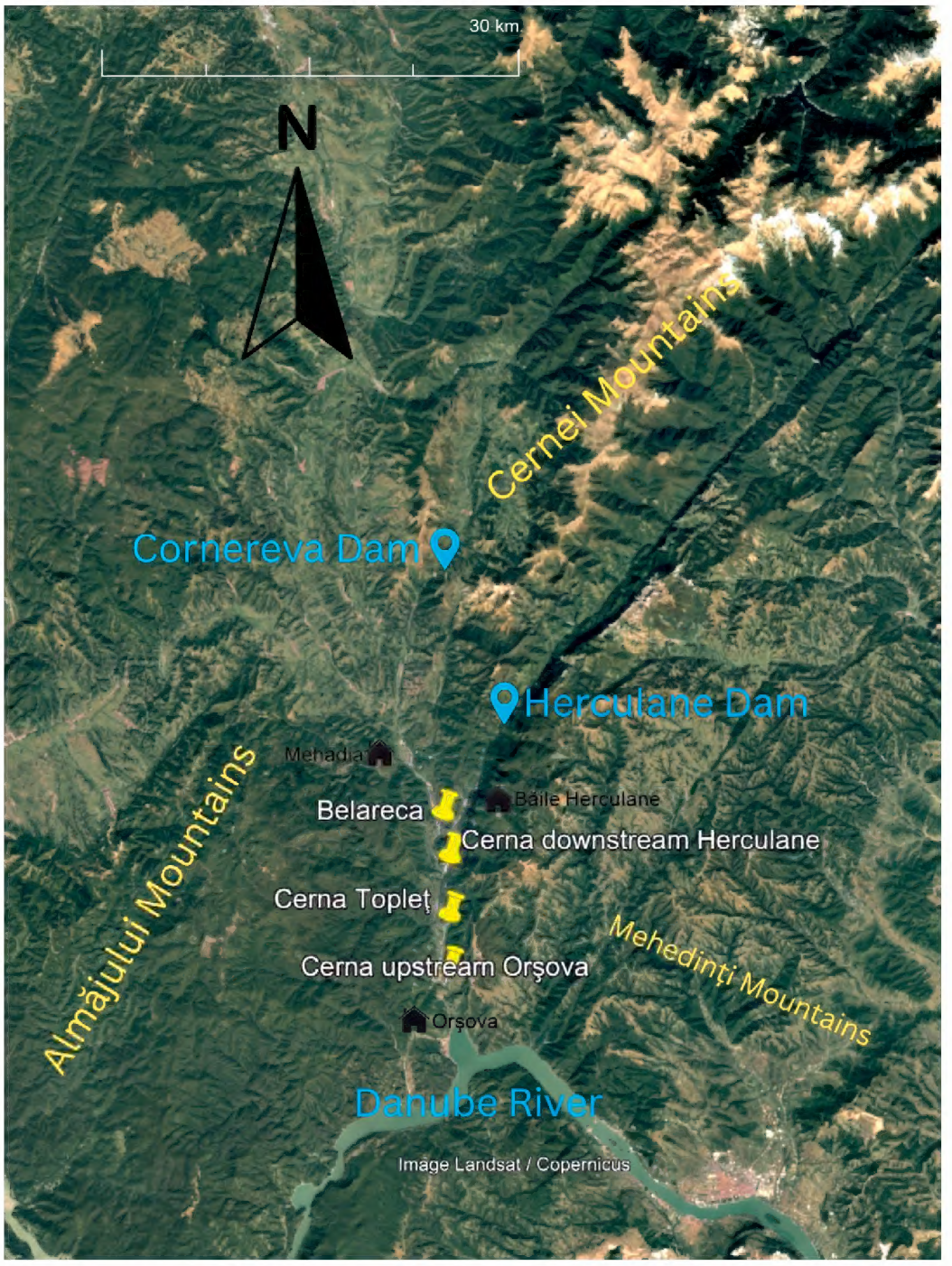


**Figure 1.** Sampling stations along the Belareca River and Cerna River (source: https://earth.google.com)

was at least 90 m. After capture for identification and taking occasionally pictures for morphometric measurements, all individuals were released in best condition.

The main purpose of the surveys was firstly to assess the fish fauna in the area in the context of infrastructural development and lately to assess the fish populations through the project "Identifying barriers in five catchments in Southern Carpathians, Romania" funded by Arcadia in the Open Rivers Programme where Aqua Crisius Association was partener with Rewilding Romania in the implementation of the project.

To avoid the risk of confusion between *C. elongata* and *C. elongatoides* we focused the species determination on the specific Gambetta four zones on the dorsolateral side (Fig. 2). Zone 2 is represented by spots at *C. elogatoides* while at *C. elongata* there is a line ending under the dorsal fin. Zone 3 spots at *C. elongata* also end before the insertion of the dorsal fin. One of the most important characteristic of *C. elongata* is anastomosis of Zone 1, Zone 2 and Zone 3 towards the tail of the fish.

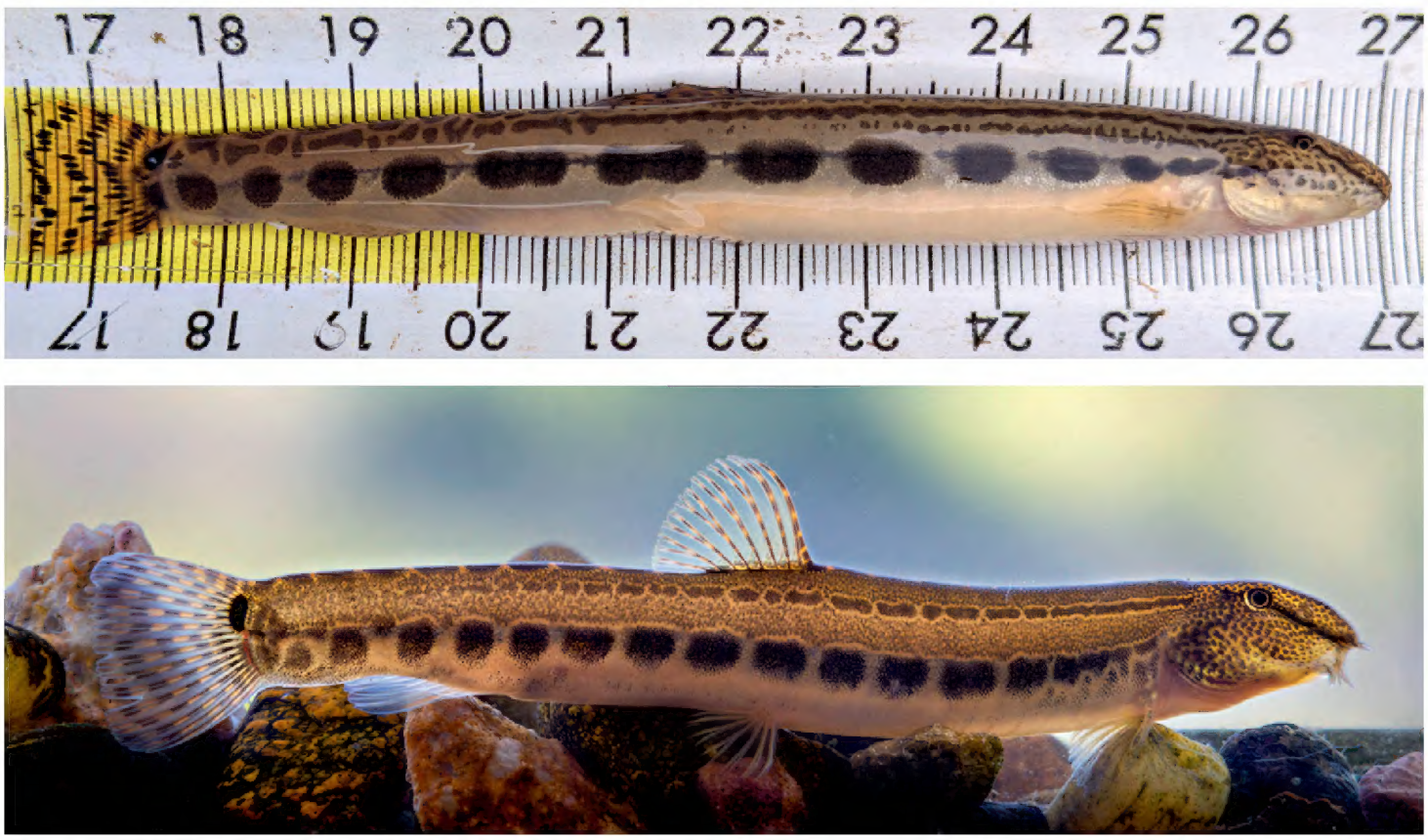


**Figure 2.** Up - Balkan Loach *Cobitis elongata* Heckel & Kner, 1858 identified in Cerna River (photo by Andrei Togor), Down - Danubian Spined Loach *Cobitis elongatoides* Băcescu & Mayer, 1969 from Crișul Repede River (photo by Lucian Macaveiu)

The sampling revelead the presence of nineteen fish species (Tab. 1), seven of them being probablly migratory species from Danube (*Leuciscus idus*, *Leuciscus aspius*, *Blicca bjoerkna*, *Vimba vimba*, *Alburnus alburnus*, *Proterorhinus semilunaris*, *Neogobius melanostomus*).

The pontocaspian gobies *Proterorhinus semilunaris* and *Neogobius melanostomus* continue their european invasion, the round goby being more abundant in Cerna

River than the Western tubenose goby. These invasive species might affect by food concurence and predation the cobitids from Cerna River (*Cobitis elongata* and *Sabanejewia balcanica*).

*Romanogobio uranoscopus* was one of the rarest identified species in Belareca, present in the study area only in the riffle formed downstream of the first concrete barrier on Belareca, upstream of its confluence with Cerna. It seems that its population has pessimistic perspectives in Belareca/Cerna, mainly due to river engineering works and damming effects.

It appears that some of the migratory species from Danube are more abundant closer to Cerna-Danube confluence while only *Leuciscus aspius* seems to preffer continuing upstream access on Belareca River which contains an unpassable fragmentation near the confluence with Cerna. The colder water flowing on Cerna River, with its aquatic ecosystem affected by the hydropeaking downstream of Herculane Dam, located 11 kilometres upstream of the Cerna-Belareca confluence, suggests a less attractive habitat for fish fauna.

*C. elongata* was never described before in Cerna River catchment, which is located between Nera and Jiu River watersheds where the species presence was mentioned before.

*C. elongata* was identified in an area where Cerna River is 30 m width, on a sandy bottom, downstream of a riffle, in a shallow pool, at the attitude of 86 m.

The individual was probably a female, considering its total and standard length. Also, the specific Gambetta Zone 4 on the dorsolateral side contained 12 lateral dark body spots, specific to *C. elongata* that usually containd 10–13 dark spots, rarely 9 or 14/15 lateral dark spots.

**Morphometric characters**

Only one individual was identified and the resources allocated for its study were limited, based on the picture taken to the specimen of *Cobitis elongata* found in Cerna River. As a consequence, only some of morphometric characters could have been determined (Tab. 2) in comparison with the data available from Bănărescu (1964), Šorić (1985), Povž & Šumer (2003) and Delić et al. (2014).

The following morphometric characteristics were measured: Tl, total body length; Sl, standard length - the distance between the most anterior part of the head and the borderof the outwardly visible base of the caudal fin; lc, head length; Oh, horizontal diameter of the eye; pD, predorsal distance; pV, preventral distance; pA, preanal distance; H, body height (maximum); lpc, caudal peduncle length; h, minimum body height; OH, eye diameter from head length.

The maximum body height (H) and the preanal distance (pA) of the individual from the Cerna River are larger than the known dimensions of the species from the Nera River system. This suggests that its body is broader than the same feature of the population from the Nera River. However, it is hard to bring such conclusions based on analysis performed on one individual. The identified characteristics correspond

to the morphometric characters measured on some of the populations from the right Danube tributaries.

**Table 1.** Fish species identified in the sampling stations

| Nr. crt | Scientific name | Migrated from Danube | Natura 2000 protection - Annex 2 of 92/43/EEC | Sampling stations (P-Present, A-Absent) | | | |
|---|---|---|---|---|---|---|---|
| | | | | Belareca | Cerna downstream Herculane | Cerna Topleț | Cerna upstream Orșova |
| 1 | *Alburnoides bipunctatus* (Bloch, 1782) | NO | NO | P | P | P | P |
| 2 | *Alburnus alburnus* (Linnaeus, 1758) | YES | NO | A | A | A | P |
| 3 | *Barbus balcanicus* Kotlík, Tsigenopoulos, Ráb & Berrebi, 2002 | NO | YES | P | P | P | A |
| 4 | *Barbus barbus* (Linnaeus, 1758) | ? | NO | A | A | A | P |
| 5 | *Blicca bjoerkna* (Linnaeus, 1758) | YES | NO | A | A | A | P |
| 6 | *Carassius gibelio* (Bloch, 1782) | ? | NO | A | A | P | A |
| 7 | *Chondrostoma nasus* (Linnaeus, 1758) | ? | NO | P | A | P | P |
| 8 | *Cobitis elongata* Heckel & Kner, 1858 | NO | YES | A | A | P | A |
| 9 | *Gobio obtusirostris* Valenciennes, 1842 | NO | NO | P | A | A | A |
| 10 | *Leuciscus aspius* (Linnaeus, 1758) | YES | YES | P | A | P | P |
| 11 | *Leuciscus idus* (Linnaeus, 1758) | YES | NO | A | A | P | P |
| 12 | *Neogobius melanostomus* (Pallas, 1814) | YES | NO | A | A | P | P |
| 13 | *Phoxinus phoxinus* (Linnaeus, 1758) | NO | NO | A | A | P | A |
| 14 | *Proterorhinus semilunaris* (Heckel, 1837) | YES | NO | A | A | P | P |
| 15 | *Romanogobio uranoscopus* (Agassiz, 1828) | NO | YES | P | A | A | A |
| 16 | *Rutilus rutilus* (Linnaeus, 1758) | ? | NO | A | A | P | P |
| 17 | *Sabanejewia balcanica* (Karaman, 1922) | NO | YES | P | P | P | A |
| 18 | *Squalius cephalus* (Linnaeus, 1758) | NO | NO | P | P | P | A |
| 19 | *Vimba vimba* (Linnaeus, 1758) | YES | NO | A | A | P | P |
| Total number of species/sampling station | | | | 8 | 4 | 14 | 11 |

**Table 2.** Measurements of *Cobitis elongata* – our data, compared with the data of Bănărescu (1964), Šorić (1985), Povž and Šumer (2003) and Delić et al. (2014)

| Characters | Bănărescu n = 35 Nera River | Šorić n = 55 Gruža River | Povž & Šumer n = 31 Kupa River | Delić et al. Kupa River n = 22 | Delić et al. Petrinjčica River n = 23 | Present study Cerna River n=1 |
|---|---|---|---|---|---|---|
| Tl mm | 113–165 | | 126–163 | 100.6–148 | 98–164 | 107 |
| Sl mm | | | | 88.2–130.3 | 85.8–144.6 | 96 |
| lc | 16–19.6 | 16.4–19.5 | 16.2–17.9 | 16.6–19.2 | 14.4–20.6 | 16.04 |
| Oh | 2.2–3.4 | | 1.9–2.3 | 2.2–3.1 | 2.4–3.4 | 2.36 |
| pD | 50.0–55.0 | 48.8–54.9 | 49.0–52.7 | 51.3–54.9 | 51.2–55.2 | 55.19 |
| pV | 50.5–55.5 | | 52.0–55.9 | 51.4–55.5 | 53.3–57.0 | 56.60 |
| pA | 74.0–80.5 | 74.3–82.8 | 77.1–82.2 | 77.8–81.9 | 79.1–89.1 | 83.49 |
| H | 9.7–12.1 | 10.9–14.8 | 8.7–10.7 | 9.1–12.5 | 9.9–12.5 | 12.26 |
| lpc | 14.6–18.4 | 14.8–18.8 | 13.0–15.8 | 13.1–15.7 | 13.4–15.6 | 15.57 |
| h | 5.9–7.4 | 5.9–8.5 | 5.0–6.2 | 5.6–6.8 | 6.2–7.8 | 7.08 |
| OH | 11.3–18.6 | 13.4–18.8 | 11.0–14.3 | 11.6–16.6 | 12.6–19.9 | 14.7 |

The presence of *C. elongata* in Cerna River system was expected, considering its confirmed presence in the neighbour Danube tributaries Nera and Jiu.

The new discovered Cerna population might become extinct, considering that Cerna aquatic ecosystem is affected because of hydropower dams since several decades and its main tributary, Belareca River may suffer serious flow disturbances if Cornereva Dam will start directing its water to Cerna River, to Herculane Dam. Also, the recently so called flood protection works finished on Belareca River might affect the fragile *C. elongata* population from Cerna River as the species can be threatened by pollution, habitat destruction and and water abstraction.

For long term conservation of *C. elongata* and other high conservative interest fish species from Cerna and Belareca river engineering works should be avoided or focused only on natural reconstruction and the water flow downstream of dams should be in accordance to natural dynamics of the rivers with a minimum flow that can provide good quality environment for aquatic life.

## Acknowledgements

The authors would like to thank to Rewilding Romania team, especially to Marina Drugă, Anghel Drașovean, Zărie Gherga, Alexandra Negruț and Florin Halastauan for our opportunity to be involved in the project "Identifying barriers in five catchments in Southern Carpathians, Romania" funded by Arcadia in the Open Rivers Programme and to Călin Hodor from Wildlife Management Consulting Company for involving us in the studies on Cerna River. Many thanks to dr. Mircescu Cristian Victor for english improvements made on text.

## References

Bănăduc D, Alexandru D, Mărginean M, Bănăduc A (2024) Miniş River (Nera/Danube Basin) Ichthyofauna Dynamic Over One Century. Transylvanian Review of Systematical and Ecological Research. 26: 37–54. 10.2478/trser-2024-0016.

Bănărescu P (1954) Contribuţii la studiul faunei ihtiologice dulcicole a Republicii Populare Române. Studii şi Cercetări Ştiinţifice Academia RPR, Filiala Cluj, 4(3–4): 153–187.

Bănărescu P, Nalbant T (1957) Eidonomische und taxonomische Untersuchungen an *Cobitis elongata* Keck. u. Kner (Pisces, Cobitidae). Senckenbergiana biologica 38: 283–294.

Bănărescu P (1964) Pisces Osteichthyes. Fauna RPR, XIII, Ed. Acad Rom. Bucureşti.

Bănărescu P (1965) Peşti rari şi cu areal restrâns din fauna ţării noastre şi problemele ocrotirii lor. Ocrotirea Naturii 9(1): 5–21. [in Romanian]

Bănărescu P (1998) On the relations between hydrography and the ranges of freshwater fish species and subspecies. Italian Journal of Zoology 65: 87–93.

Bănărescu P, Bănăduc D (2007) Habitats Directive (92/43/EEC) fish species (Osteichthyes) on the Romanian Territory. Acta Ichtiologica Romanica 2: 43–78

Botnariuc N, Tatole V (2005) Cartea Roşie a vertebratelor din Romania. Muzeul Naţional de Istorie Naturală„Gr. Antipa". Bucureşti, 260 p.

Bușniță TH, Alexandrescu I (1963) Atlasul peștilor din apele R. S. România Editura Științifică.

Cocan D, Mireşan V (2018) Ihtiologie - Volumul I - Sistematica şi Morfologia Peştilor Ichthyology - Volume One - Systematic and Fish Morphology. The current situation of fish species in Romania, 559p.

Delić A, Bučar M, Kučinić M, Mihoci I, Vilenica M, Kiš-Novak D, Dolenec Z (2014) Contribution to the morphology of the Balkan Loach, Cobitis elongata Haeckel and Kner, 1858 in Croatia. Natura Croatica 23(1): 15–25

Ford M (2024) *Cobitis elongata*. The IUCN Red List of Threatened Species 2024:e. T5031A137242218. https://www.iucnredlist.org/species/5031/137242218

Heckel J, Kner R (1858) Die Süsswasserfische der Österreichischen Monarchie mit Rücksicht auf die angränzenden Länder – Monografien Vertebrata Pisces, 0001: 388 p. [in German]

Kottelat M, Freyhof J (2007) Handbook of European freshwater fishes. Publications Kottelat, Cornol and Freyhof, Berlin. 646 pp.

Kubečka J, Godø OR, Hickley P, Prchalová M, Říha M, Rudstam L (2012) Fish Sampling with Active Methods. Fisheries Research 123–124: 1–3. doi:10.1016/j.fishres.2011.11.013

Marić D, Pavlović V (2005) First records and description of *Cobitis elongata* Heckel & Kner 1858 (Cobitidae) in Montenegro. Natura Montenegrina 5: 109–115.

Nagy AA, Erős N, Imecs I, Bóné G, Fülöp A, Pap PL (2023) Distribution and diversity of fishes and lampreys in Transylvania (Romania): a complete survey and suggestions for new protected areas. ZooKeys 1166: 351–373. https://doi.org/10.3897/zookeys.1166.102854.

Năstase A, Oţel V (2016) Researches on the fish fauna in some SCIs Natura 2000 from Romania. Aquaculture, Aquarium, Conservation and Legislation 9: 527–540.

Oțel V, Năstase A (2010) Researches on ichthyofauna in the Natura 2000 sites from Banat (Romania). Scientific Annals of the Danube Delta Institute 1: 33–38.

Pehlivanov L, Uzunova E, Pavlova M (2009) Ichthyofauna of the Vit River (Danube basin): composition, distribution and conservation significance. Biotechnology & Biotechnological Equipment 23(1): 337–340.

Povž M, Šumer S (2003) Status, distribution and moprphometric/meristic characteristics of *Cobitis elongata* Heckel and Kner 1858 from Slovenia. Folia Biologica (Krakow) 51 (Supplement): 21–25.

Šorić VM, (1985) *Cobitis elongata*, Heckel & Kner 1858 u ihtiofauni SR Srbije. Ichthyologia 17(1): 29–39. [in Serbian]

Tutman P, Buj I, Ćaleta M, Hamzić A, Korjenić E, Adrović A, Glamuzina B (2017) Status and distribution of spined loaches (Cobitidae) and stone loaches (Nemacheilidae) in Bosnia and Herzegovina. Journal of Vertebrate Biology 66(4): 211–226.

Vasiliu GD (1959) Peştii apelor noastre. Editura Ştiinţifică, Bucureşti. [in Romanian]

*** (1992) Atlasul Cadastrului apelor din România, partea I - date morfo-hidrologice asupra rețelei hidrografice de suprafață, Ministerul Mediului Aqaproiect S.A,București

*** (2016) PMPCNB - Plan De Management Integrat Parcul Național Cheile Nerei – Beușnița ROSCI 0031 și ROSPA 0020 Cheile Nerei – Beușnița.

*** (2023) PMSHB - Planul de Management al Spaţiului Hidrografic Banat 2023.

*** (1992) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora